

REMARKS

Claims 1-11 are currently pending in this application. Claims 1 and 2 have been amended and new Claim 12 has been added to more clearly identify the subject matter which Applicants regard as the invention. Support for the claim amendments and new claim may be found throughout the specification as filed.

In view of the following Remarks, and the claim amendments, reconsideration or withdrawal of the rejections to the application in the Office Action is respectfully requested.

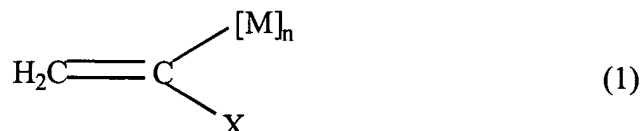
In the Office Action, the Examiner objected to the title of the application and required a new title. The Applicants appreciate the courtesy shown by the Examiner in a telephone conference with Applicants' attorney, Renee J. Rymarz, on January 6, 2004 in which the title was discussed. In that phone conference, the Examiner agreed that the title as currently presented in the application is acceptable. Therefore, no amendment is necessary.

Additionally, in the Office Action, the Examiner rejected Claim 2 under 35 U.S.C. §112 (second paragraph) as being incomplete for omitting essential subject matter in steps. Applicants have amended the claims and added new Claim 12 to more clearly define the invention. These amendments should address the issues raised by the Examiner with regard to §112. Therefore, Applicants believe that the amended claims are not incomplete and respectfully request that the rejection based on 35 U.S.C. §112 be withdrawn.

The Examiner also rejected Claims 1-11 under 35 U.S.C. §102(b) as being anticipated by Huybrechts, et al. (Canadian Patent No. 2,149,399). Additionally, the Examiner rejected Claims 1-11 under 35 U.S.C. §102(b) as anticipated by or in the alternative, 35 U.S.C. §103(a) as being unpatentable over Yamamoto, et al. (JP No. 06172466). With regard to the Examiner's rejections based on 35 U.S.C. §102 and 35 U.S.C. §103, Applicants respectfully disagree with the Examiner's assessment regarding the patentability of the rejected claims in view of Huybrechts, et al. or Yamamoto, et al.

The amended claims are directed to a method for producing an aqueous resin dispersion composition. The method comprises preparing a monomer mixture containing a first monomer having a carboxyl group and a second monomer having a hydrophobic group. The monomer mixture contains the first monomer in a proportion of 10-75% by mole. A

macromonomer is formed by radical polymerizing the monomer mixture at a temperature of from 180°C to 350°C. The macromonomer has an ethylenically unsaturated bond at the end, and is prepared in the absence of a chain transfer agent. The macromonomer is represented by the following formula:



where X represents a polar group, M represents a monomer unit, and the character n stands for natural number representing the degree of polymerization. The macromonomer is then neutralized to obtain a neutralized macromonomer having an ethylenically unsaturated bond at least at one end thereof. Emulsion polymerization is then carried out utilizing at least one vinyl monomer in an aqueous solvent with the neutralized macromonomer as an emulsifier. In one embodiment the method includes preparing an aqueous solution of the neutralized macromonomer prior to emulsion polymerizing the at least one vinyl monomer. In such an embodiment, the at least one vinyl monomer can be added continuously or intermittently to the aqueous solution of the neutralized macromonomer during emulsion polymerizing.

The Huybrechts, et al. reference is directed to the preparation of graft copolymers from ethylenically unsaturated monomers, carboxylic acid or amine functional macromonomers and one or more oligomeric chain transfer agents. The macromonomer is prepared by using a catalytic chain transfer agent (page 11, line 8). Alternatively, the macromonomer can be produced by a cobalt chain transfer agent (page 11, lines 26-27). Also the macromonomers can be produced by a process which employs low molecular weight oligomers as chain transfer agents. These oligomers can themselves be produced with a metal chelate, other suitable chain transfer catalyst or without polymerization (page 11, lines 32-36). Therefore, chain transfer agents are an integral part of the graft copolymers formation as well as preparation of the macromonomer utilized in the method to form such graft copolymers.

Clearly this is different from the present invention which requires preparation of the macromonomer in the absence of any chain transfer agent and makes no use of chain transfer agents in formation of the aqueous resin dispersions.

Additionally, the Huybrechts, et al. patent references utilization of a cobalt complex which will leave traces of the metal in the resulting macromonomer. The disadvantages of such metal trace in the macromonomer were discussed in detail by Applicants at paragraph 5 of the application, which is a discussion of a Japanese counterpart to Huybrechts, et al.. Clearly, the present invention is distinct from that disclosed in the Huybrechts, et al. reference and is in no way anticipated by Huybrechts, et al.

With regard to the Yamamoto, et al., it teaches an aqueous resin dispersion prepared by free radical polymerization of vinyl monomers in the presence of a neutralized terminally unsaturated ionic macromonomer with a methacryloyl group at the terminals. A careful inspection of the formula for the macromonomer represented in Claim 1 clearly makes it such that the macromonomer does not and cannot include an ethylenically unsaturated bond which is a methylacryloyl group. Therefore, the present invention is not similar to or anticipated by the Yamamoto, et al. reference. Additionally, because the Yamamoto, et al. reference makes clear reference that such methacryloyl group is required in its invention, one of ordinary skill in the art would not be tempted to utilize the Yamamoto, et al. reference without such methacryloyl group. The presence of the methacryloyl group would allow for the macromonomer to homopolymerize with itself resulting in a product that will not be as stable and act as a poor emulsifier as is required by the present invention. This is because there is no uniform distribution of the macromonomer because of the homopolymerization. The resulting reaction will form a combination of the product of the homopolymerization of the macromonomers and polymer and macromonomer combination and at least one vinyl monomer which is less stable. Conversely, the inventive method will involve reaction of the polymer of the macromonomer and the vinyl monomer resulting in a very stable polymer for use in paints, etc. Conversely, the present invention would not allow for the macromonomer to have such methacryloyl group. Therefore, the Yamamoto, et al. reference does not render the present invention obvious, but rather Yamamoto, et al. teaches away from the present invention. For all of the above reasons, the Huybrechts, et al. and Yamamoto, et al. references in no way teach, suggest or render obvious the present invention. All of the Examiner's arguments are discounted by the fact that the present invention and formation of

the macromonomer are carried out in the absence of a chain transfer agent, a necessary element of the Huybrechts, et al. reference. Additionally, a careful inspection of the formula included and required for the macromonomer in the present invention makes it clear that such macromonomer cannot include the ethylenically unsaturated bond which is a methylacryloyl group, as required by Yamamoto, et al. Therefore, the present invention is not anticipated or rendered obvious by either the Huybrechts, et al. or Yamamoto, et al. references.


CONCLUSION

In view of the foregoing remarks, and amendments, Applicants respectfully request that the Examiner reconsider and withdraw the rejections discussed above. Applicants also solicit an early notification of allowance. If Examiner Egwim has any questions, or believes a telephone discussion would expedite prosecution, he is invited to contact the undersigned at telephone number (262) 631-4495.

Respectfully submitted,

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